Infective Endocarditis in Pediatrics

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1. Introduction

Infective endocarditis (IE) is an infection of the endocardial surface of the heart, including valves, septal defects, and mural endocardium. It is relatively rare in children but carries significant morbidity and mortality.

2. Etiology

Cause	Details
Bacterial	Staphylococcus aureus (no prior heart disease, catheters), Streptococcus viridans (CHD), Enteroco
Fungal	Candida species, mainly in immunocompromised patients
Risk Factors	CHD, prosthetic valves, CVC lines, previous IE, immunosuppression

3. Pathophysiology

Microorganisms enter the bloodstream and attach to abnormal endocardial surfaces, forming vegetations composed of platelets, fibrin, microorganisms, and inflammatory cells. These may cause valvular damage, emboli, and immune phenomena.

4. Clinical Features

System	Features
General	Fever, chills, malaise, weight loss, fatigue
Cardiac	New/changing murmur, signs of heart failure
Peripheral	Petechiae, Osler's nodes, Janeway lesions, splinter hemorrhages, Roth spots

5. Diagnosis

Modified Duke Criteria:

Criteria	Details
Major	Positive blood cultures (typical organisms), echocardiographic evidence of endocardial involvement
Minor	Predisposing heart condition, fever >38°C, vascular/immunologic phenomena

6. Management

Medical: Start empirical antibiotics after cultures. Vancomycin + gentamicin initially; adjust based on cultures. Duration: 4–6 weeks IV.

Surgical: Indicated for heart failure, uncontrolled infection, large vegetations (>10 mm), abscess.

7. Complications

Type	Examples
Cardiac	Heart failure, valvular damage
Embolic	Stroke, PE, renal infarcts
Immune-mediated	Glomerulonephritis, Osler's nodes, Roth spots

8. Prevention

Prophylactic antibiotics for high-risk patients undergoing high-bacteremia procedures. Good oral hygiene is essential.

9. Summary

IE is a rare but serious infection in children. Early recognition, targeted antibiotics, and surgical intervention when indicated are crucial. Prevention through prophylaxis in high-risk groups is key.